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ABSTRACT

The term "media," as employed here, refers to printed and audiovisual forms of communication and their accompanying technology. A representative list of printed materials might include books, periodicals, catalogs, and printed programmed materials. Audiovisual materials include films and filmstrips, recordings, slides, graphic materials, transparencies, videotapes, and dial access programs. Media programs are growing in importance because of the role of media in human communication and of the pivotal role of media in individualized instructional programs. The computer is one form of media that offers the greatest promise for facilitating all types of individualized instruction and, as such, is representative of the range of roles that instructional media can play. The use of computers, like all media, is determined by its cost and other problems such as the state of technology and institutional rigidity. As its function changes, the school library is increasingly referred to as the instructional media (or materials) center (IMC). An effective IMC must be designed properly, run by a media specialist, and supported by trained teachers and knowledgeable principals. It must also have its rightful place in the school budget.
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SCHOOL LEADERSHIP

# DIGEST

## Use of Instructional Media in the Schools

David Coursen

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## FOREWORD

Both the National Association of Elementary School Principals and the ERIC Clearinghouse on Educational Management are pleased to continue the *School Leadership Digest*, with a second series of reports designed to offer school leaders essential information on a wide range of critical concerns in education.

The *School Leadership Digest* is a series of monthly reports on top priority issues in education. At a time when decisions in education must be made on the basis of increasingly complex information, the *Digest* provides school administrators with concise, readable analyses of the most important trends in schools today, as well as points up the practical implications of major research findings.

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The author of this report, David Coursen, is employed by the Clearinghouse as a research analyst and writer.

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# INTRODUCTION

"Instructional media" is a term that is increasingly used to refer to the various types of equipment schools may use in educating their students. The fact that such a broad, ambiguous, and technical-sounding term—in contrast to the older, more specific if less inclusive "books and blackboards"—is now needed to cover the subject suggests how rapidly the range of available instructional tools has expanded. Indeed, compiling an exhaustive list of the various kinds of "instructional media" could, in itself, prove a formidable task. But the scope and complexity of the subject should not obscure its importance; products of new educational technology have the potential to facilitate substantial—or, as some would argue, revolutionary—changes in contemporary education, forcing redefinitions both of what schools teach and how they teach it.

This idea of change in education, particularly change induced by technology, seems, on its face, vaguely sinister and even a bit frightening. One reason for this is that our society has implicitly assigned a broad range of functions to its educational system. As DuMolin observes, education is expected to transmit to its students "not only the academic disciplines of the past, but also the traditions, values, and morals from which they were developed." Insofar as this expectation is held, the job of education is conceived in two partially incompatible ways.

The school is supposed to act, on the one hand, as a profoundly conservative socializing force that passes on and thus helps perpetuate the values of the past. On the other, the school is to serve as an instructional institution that stimulates intellectual development by challenging students with new ideas. When the new ideas conflict with the old values, the school is caught in the middle, forced to choose between carrying out its socializing function, by resisting those ideas,

or its intellectual function, by presenting them.

A similar conflict may develop around the use of new instructional media, particularly where instruction is to become media-based rather than teacher-based. There is, after all, something more than a little disquieting about the idea of replacing human beings with machines—what could be more dehumanizing? Similarly, the idea, supported by all but the last few generations of human experience, that knowledge is stored in books is not easy to discard in favor of a multimedia approach.

And the very idea that "media literacy," the ability to obtain information from a variety of different media, should replace print literacy, the ability to read and write, may be viewed with considerable suspicion in an era when increasing numbers of students complete their educations without acquiring functional literacy of *any* sort.

The fact remains, though, that while most areas of American society have been drastically transformed by the fruits of new technology, education, particularly its instructional methods, remains virtually unchanged from a century ago. This problem of how education will respond to and make use of technology is not, however, entirely new. For example, the printing press, generally credited with making universal literacy possible, received less than universal acceptance when it was first introduced. The Sorbonne recommended abolishing the art of printing in order to save religion. The Dukes of Urbino considered printed books ugly (partially, one suspects, because they lessened the value of the family collection of handwritten volumes) and refused to admit them to their library for over a century.

It would, no doubt, be presumptuous to suggest that new instructional media will ultimately benefit education as much as the printing press has done, but it is nearly as presumptuous to claim that contemporary education is already so effective that it can afford to reject outright the very idea of adopting new methods or materials. Yet, as the evidence shows, this is in large part what has been happening. DuMolin points to a 1970 report indicating that "not more than 5% of

classroom time at all levels of American education was in any way affected by the newer media of television, films, programmed texts, etc." Our discussion will focus primarily on these newer instructional tools as underutilized educational resources.

Our definition of instructional media will attempt to suggest the range of the subject, not to cover it exhaustively. The term *media*, as employed here, refers to printed and audiovisual forms of communication and their accompanying technology. A representative list of printed materials might include books, periodicals, catalogs, and printed programmed materials. Audiovisual materials include films and filmstrips, recordings, slides, graphic materials, transparencies, realia (three-dimensional objects), nonprinted programmed material, videotape recordings, and dial access programs.

Our discussion of instructional media, like our definition of the subject, will attempt to be introductory rather than comprehensive and will implicitly emphasize the potential educational role of those media that have not traditionally been included in the standard school media collection.

## WHY A MEDIA PROGRAM?

The most obvious reason for introducing new media into the schools is that such media are now an important element in human communication. In little more than a century, the ways that information can be conveyed have changed astonishingly, as smoke signals and drumbeats have given way to television. Technology has made it possible to transmit information rapidly and even to have large groups of people receive the same information simultaneously. Indeed, the various mass communications media have become so commonplace that they are an accepted part of daily life, one that plays a significant role in shaping contemporary society.

As the nature of human communication has changed, so, too, has the function of education. When information was stored and transmitted almost exclusively through the written word, a student who possessed print literacy—the ability to read and write—could properly be said to have mastered the tools of communication. But the new media, which store and transmit information in a wide variety of forms, have changed the very concept of what it means to be "educated." In the contemporary world, a well-educated person must have "media literacy"—the ability to make use of most or all of the various forms of communication and information storage and dissemination that exist. Obviously, this means that the job of the schools is to familiarize students not only with the use of the printed word, but with the whole range of communications media. This fact alone constitutes a persuasive argument for the development of school media programs.

### Instructional Benefits

To understand the potential instructional benefits of effective media utilization, it is first necessary to consider briefly how most schools are organized. In the standard classroom, a single teacher works with a large group of students, and

instruction is geared to the needs of the mythical "average student." When this arrangement first evolved, over a century ago, it seemed to offer the best available method of providing large numbers of students with quality education at a reasonable cost. Books and blackboards, the principal instructional materials then existing, were ideally suited for this type of instruction.

This teacher-centered arrangement, developed to meet the needs of nineteenth-century education, has persisted, with few changes, to the present. But, as many writers point out, it no longer represents the best that education can offer—indeed, it would be surprising if it did. The products of educational technology now have the potential to stimulate fundamental changes in the nature of contemporary education. DuMolin suggests some of these changes:

> Technology has the potential to force a re-examination of goals; to stimulate concern for performance; to automate certain learning tasks; to help individualize some aspects of student learning; to provide self-instruction in non-institutional surroundings; to strengthen research and management of instructional detail; and to improve educational counseling through rapid data processing.

## What the Research Shows

Unfortunately, education has been slow to utilize or even to explore these potential benefits, and discussions of instructional media use are often grounded in speculation rather than in evidence. Allen discusses the fruits of media research, noting that there is not even any conclusive evidence that instruction using nonverbal media is intrinsically more effective than verbal instruction. In addition, he points out, little is known about the relationship between media and learner attributes, or about specific ways of utilizing media to accomplish specific educational objectives. He cites other research gaps as well:

> And we need to know the efficacy of different media program administrative procedures, the nature of innovative practices, the distinctive roles that media can play in instruction, the cost-effectiveness consideration of media, and other critical but sticky educational problems.

Fortunately, this lack of knowledge of the effects of media use is far from total. Allen notes that there is some evidence that the use of "such procedures as student participation, direction of attention, introductions to materials, and repetition of stimuli" seems to make classroom instruction more effective. More generally, a growing body of evidence suggests the importance of making education more responsive to the unique needs of each individual learner. Research shows that there are far greater differences among children of the same age than educators had previously assumed. Children perceive what they are taught in distinctively individual ways, so that no single instructional approach will be most effective for even a majority of a group of students. Some children may, indeed, learn best through reading, but others, of equal ability, may find other visual or manipulative activities more conducive to successful learning.

Instructional media will play a pivotal role in the design of any instructional program that attempts to respond to these individual learning needs. The key to such a program is the effective use of a variety of resources to center instruction on the learner rather than on the teacher. It is also important to promote active rather than passive learning, as each child pursues a course of study programmed so that he or she is engaged in purposeful activities oriented toward achieving specific educational objectives. As each student progresses at his own rate toward objectives suited to his abilities, using the most appropriate learning methods and materials, he will have a genuine opportunity to gain the sense of personal accomplishment that comes from working toward and successfully achieving specified goals.

Clearly, the mechanics of providing individualized instruction will be far different from those for maintaining a self-contained classroom; certain organizational changes will have to be made to accommodate these differences. A comprehensive program of individualized instruction might require the use of such methods as team teaching, flexible schedules, flexible groupings of students, individualized study programs, tutorial instruction, prescriptive techniques, and continuous

diagnostic testing. But the most important component of such a program is the availability of a wide range of instructional materials, so that the school will have the diverse resources needed to develop and implement a program flexible enough to respond to all kinds of individual learner needs.

## MEDIA IN ACTION: THE COMPUTER AS A CASE STUDY

Even our brief discussion of the diverse resources and methods that may be required for a comprehensive program of individualized instruction should suggest some of the difficulties of effectively managing such a program. Spuck and Owen even argue that manual management may be impossible without the help of the computer or some other type of automatic assistance. In fact, the computer is one form of media that offers the greatest promise for facilitating all types of individualized instruction and, as such, is representative of the range of roles that instructional media can play in contemporary education.

There are several ways to use the computer as an instructional resource, but most share the assumption, as Singh and Morgan note, that "the computer is used to aid and abet both teacher and students in the educational process." Among the most widely used approaches to Computer Based Instruction (CBI) are Computer Managed Instruction (CMI) and Computer Assisted Instruction (CAI). In addition, there are a number of other combinations of letters that denote various uses of the computer. Indeed, it almost seems that, if the jargon of technology doesn't destroy the English language, the combinations of initials will. Nevertheless, there *is* a fundamental and useful distinction between CMI and CAI.

### Computer Managed Instruction

In a CMI program, the computer is used to help manage instruction, for example, by monitoring the instructional process and providing the instructor with diagnostic and prescriptive information for use in program planning. The computer can process and evaluate performance data concerning individual children; the results of this computerized analysis might be used to regulate the pacing of lessons, to help in

the selection of appropriate instructional methods and materials, and even to suggest revisions in an ongoing instructional program. The key to CMI is the ability of the computer to receive, store, and rapidly process and retrieve information; the computer remains, however, essentially a tool, and the actual instructional responsibility remains with the teacher.

With CMI, the students never work directly with the computer, so the system does not require expensive computer terminals and can be put into operation using conventional Electronic Data Processing (EDP). In addition, CMI can be adopted without fundamental changes in the school's instructional organization, since the teacher retains control over the actual instructional process, and the computer's role is one of helping teachers, rather than attempting to replace them. Finally, a computer that is used for CMI may also be employed to do other jobs, such as administrative data processing.

### Computer Assisted Instruction

CAI refers to learning situations in which a computer actively engages in certain kinds of instructional tasks. Typically, students work directly at the terminals of computers that have been programmed to perform such teaching chores as conducting simple drill and practice exercises, problem-solving exercises, simple educational games, and individualized testing. This, in turn, can free the classroom teacher from the mechanical drudgery of such operations, presumably for other types of instruction.

CAI is still a relatively new approach, and data for measuring its effectiveness are fragmentary; studies do suggest that it is at least as effective as traditional types of instruction. Before it is widely adopted, there is undoubtedly a need to determine the full effects and implications of removing the human element from instruction. In addition, there is a possibility that CAI may reduce social interaction among students; thus it may be important to design CAI systems that specifically promote desirable interactions among students.

Another potential difficulty is that most schools may not be structured to benefit from CAI. For example, if, as its

proponents hope, such instruction can actually speed up the learning process, schools based on the traditional age-grade system, with promotion once a year, might not be able to make use of the time saving. As a result, CAI may have serious implications for the organization of schools wishing to adopt it.

### Deterrents to Use: Price Tags and Other Problems

With any program of CBI, but particularly with CAI, high costs are a potential problem. Computerized instruction is far more expensive than traditional programs—in some cases, CAI may cost as much as $100 per year per student at the beginning—and there is no consensus whether it can improve instruction enough to justify its price tag. Some savings are possible; most cost estimates assume the use of a (relatively) low-cost computer serving a small number of student terminals in a single location. This *may* be the most feasible arrangement, but in some circumstances, particularly in large urban school systems, the cost of each use of the computer may be considerably reduced through purchase of a single, high-capacity computer with a large number of terminals spread among several schools. Costs may also be reduced by intensive inschool and afterschool use of the system, or even by arranging for the sharing of computer time.

The promise of computerized education may be great, but Pohland and Smith, reporting on an actual attempt to implement a CAI program, concluded that the problems were even greater. While the date of this study (published in 1971, but reporting on a project that was centered on the 1968-69 school year) may make some of its conclusions obsolete, the pattern of its findings is significant. At the time the project was initiated, there were no "effective, complex programs through which students interact with machines using natural language and unrestricted questions." This meant that the computer could be used *only* to direct student drill and practice routines. In addition, the computers themselves ("the prima donnas of educational technology") often proved fragile and undependable, prone to minor and major breakdowns.

Perhaps worst of all, the initial and continuing costs of the system were far higher than most school systems could afford without outside assistance.

Some of the problems the project encountered were evidently caused by poor program management. For example, the program encountered considerable teacher resistance, but the authors speculate that one reason for this may have been the almost total absence of followup to the initial teacher training workshops that were conducted. In any case, teachers used the program erratically and tended to see it as relatively useless; in these circumstances, the authors even found that "CAI by itself does not substantially reduce the amount of in class drill." Because of the continuing problems the program encountered and because computers are so well suited to performing administrative tasks, the program was gradually abandoned after computer use had been increasingly diverted to administration.

From the results of this program, the authors concluded that CAI may be feasible, but it is not yet practical; its effective implementation is blocked by a combination of institutional rigidity and infant technology. Much of the failure of the program was caused by ineffective use of CAI, not its inherent unworkability, and computer technology may have improved since 1971, but Pohland and Smith's dismal conclusions certainly suggest that the computer is something less than a panacea for all the ills of contemporary education.

## THE IMC: SUCCESSOR TO THE LIBRARY

It sometimes seems that, as surely as technology changes the ways people live, so, too, it alters the ways they talk; a new term, "instructional media," is, as we have seen, now needed to encompass the range of instructional materials in the schools. Similarly, the school library, as its functions change and it comes to house all kinds of instructional media (rather than simply books), is increasingly referred to as the "Instructional Media (or Materials) Center" (IMC). Ironically, "instructional media" and "IMC," while they *sound* almost chillingly impersonal, actually refer to an educational philosophy that seeks to humanize education, while the more familiar-sounding "books" and "library" connote a more impersonal, regimented instructional approach.

The new terms may sound unpleasant, but the changes they herald are long overdue. Too often the school library has epitomized the worst aspects of the educational system. Ellsworth and Wagener, writing in 1963, successfully evoked the spirit of the traditional school library:

> In most of today's secondary schools the library will be found in a small room with a few hundred books around the walls. Seats for a few readers are presided over by a librarian whose main task is to keep order over a reluctant group of students who are there, not because they want to be, but because they have been sent there to study their textbooks. The students are likely to be more interested in attracting attention than in pursuing the study of a problem. They are there not as individuals, but as captive groups.

While this situation has never been widely endorsed, it has persisted in many schools, largely as a result of a combination of circumstances—inertia, unwillingness to spend money, a concept of the library as a study hall (particularly when it is too small and poorly equipped to be of much use as anything else), and the practice of separating a school's audiovisual resources from its printed resources.

Much of the success of a school's media program will depend on how successfully the media resources are housed—on how well the IMC works. Obviously, the traditional conception of the school library must change. To begin with, the old distinction between books, which belong in the library, and audiovisual materials, which belong "somewhere else," will have to give way to a unified approach that recognizes the need to house all instructional media within the same facility. The marginal position of the library in the life of the school will have to be transformed into a more central role for the IMC. What was once considered an auxiliary service, largely separate from the actual functioning of the school, will have to become an integral, indeed a crucial, part of the overall instructional program.

## Designing and Equipping the Center

One way to promote the effective operation of an IMC is by designing it appropriately. Because a center is, by its very nature, a multiple use facility housing a variety of media, it must be flexible. Media use may include a wide range of activities involving large and small groups and individuals; some activities may generate considerable noise, while others demand silence, some students may wish to read, others to use audiovisual materials. A well-designed center will be able to accommodate all these activities, simultaneously if necessary.

A comprehensive facility might include large-group reading and study areas, display areas, instruction rooms, listening and viewing areas, staff rooms, and storage space. In addition, a center might include facilities for local production of instructional materials, both so that the school staff may produce its own materials as necessary and so that students may have the opportunity to work on media production as a learning experience. Good design should also attend to such mundane but essential details as appropriate lighting, wiring, ventilation, and heating.

Another key to effective center design is planning for accessibility. On the simplest level, this might mean placing the center in a location convenient to the entire school. But

genuine accessibility may be more closely related to staff and student attitudes that promote frequent use than to physical location. No school today follows the practice of some monasteries in the Middle Ages of keeping books chained in place, but restrictive staff attitudes and check-out policies may have an equally stultifying effect. More generally, Gorman cautions against an excessive emphasis on the physical environment of the center and the neglect of its real purpose, the facilitation of learning:

> Little consideration is given to the type of learning that is to take place within the area, and almost no consideration is given to designing the area in terms of facilitating that learning: A facility should represent an integration of physical environment and program which reflects an analysis of the nature of the learning and then its facilitation.

The range of equipment that might conceivably be found in an IMC is limited only by the diversity of the school's needs and the imagination of its staff. Almost any center is likely to include books, films and filmstrips, periodicals, pamphlets, maps, recordings, slides, and the equipment to use the materials. Other possible center equipment might include computer terminals, electronic devices, listening and viewing stations, microfilm readers, and production facilities (which themselves may vary from basic mounting facilities and lettering devices to copying machines and darkrooms).

No center can function effectively without a complete current index of all its holdings and where to locate them. In addition, the center should have an organized program governing equipment selection and use. Some facts to consider in evaluating a piece of equipment include its relevance to the needs and objectives of the media program, ease of operation, reliability, appearance, safety, compatibility with existing equipment, sturdiness, ease of repair, cost, warranty, service, and the reputation of its manufacturer.

## A New Profession: The Media Specialist

The successful management of the IMC will require the unique skills of a new kind of professional, skilled in using

both print and nonprint media. The job of the media specialist includes a wide variety of functions: helping with IMC use, selecting and evaluating materials, and even assisting in curriculum development. As media are more widely utilized in instruction, the specialist will have an increasingly active role in the instructional life of the school and will need the ability to communicate and collaborate with school administrators, teachers, and students. The job of media specialist essentially combines and expands the old roles of librarian and audiovisual specialist into a new professional specialty. This fact is gaining increasing recognition as more states develop state certification standards for media specialists: in 1968, 17 states had or were working on developing certification programs; by 1972 there were 41 such states.

Eshleman cautions against the facile assumption that the two different specialties can be so easily combined. He refers to tests that showed great differences in priorities between those interested in the two areas, and concludes that a "clear-cut dichotomy" between librarians and audiovisual specialists should be recognized through separate certification. This is an interesting possibility, but some of Eshleman's logic is dubious. For example, he makes the extraordinary assertion that men, who are usually "not quite as neat and tidy as females," are more apt to be interested in technology, while women make good librarians. He then suggests that "people who enter the integrated training programs most likely will be either (1) book-oriented women who may pretend they are also interested in technology or (2) technologically oriented men who will try to force themselves to show some interest in library science." The fact that women only "pretend" interest, while men have the self-discipline to "force themselves to show some interest," indicates the author's conception of the professional integrity of women. Eshleman's sexist generalizations make his conclusions suspect, but his claim that the two specialties are, in fact, fundamentally incompatible deserves more intelligent consideration.

## IMPLICATIONS FOR TEACHERS AND PRINCIPALS

While a media program requires the active participation of the classroom teacher if it is to be successful, the instructional philosophy of media use may actually inhibit teacher cooperation. A media program makes considerable demands on classroom teachers; shifting the focus of instruction from the teacher to the learner fundamentally alters the nature of the teacher's role and forces him to develop new attitudes as well as to learn new skills. When the classroom is self-contained, the teacher has sole control over instruction, but in an effective media program, classroom and media instruction must work together as cooperative parts of an overall approach to education. The teacher may continue to do most of the actual teaching, with the supplementary help of media resources, or media use may actually become the focal point of instruction, but in either case, if the media program is to be effective, the teacher must learn to share instructional control and responsibility.

### The Need for Teacher Training

Since a teacher may have considerable trouble adjusting to the new program anyway, it is particularly important that teacher training for media use be effective. Someone who already has misgivings about a program and who also lacks the necessary skills and knowledge to work with it is hardly prepared for a successful adoption experience. A well-prepared teacher should be familiar not only with ways to use instructional media but also with reasons for doing so. Training should give the teacher a general understanding of communication and the learning process and a thorough knowledge of media characteristics and available resources.

Most teacher training, at least initially, will have to be conducted inservice, and, where possible, it should use the same

methods the teacher is being trained to employ in the classroom. The trainee should have a chance to work with and learn from media resources, and, where possible, instruction should be individualized. This can give the trainee firsthand knowledge of the benefits of an instructional media program. Followup is also crucial to an effective training program. And the school's media center should include a well-equipped professional library that teachers may consult to learn more about media.

The timing of the inservice training program is obviously important. Glogau and others offer the following recommendation:

> We do not suggest in-service courses or other techniques for initial involvement in the media center before the program becomes operational. We have found that in-service courses or workshops work best after a plan is in operation and teachers can relate the course offerings to their practical day-to-day problems in the classroom.

Because teacher support is so essential to a media program, it must be carefully cultivated. Teachers should be encouraged but not pressured to use media resources; when pressure is seen as interference, it can generate hostility and resistance. Media use should be teacher initiated, and media resource availability can be planned in recognition of the fact that most teachers use materials to further their own instructional goals. Ideally, the successes of early media-use projects will demonstrate the value of the program and create a ripple effect throughout the school. Staff meetings can also be held to discuss the program and promote a more active role for it.

Several factors play a part in determining whether resources are used or neglected. Among the most frequently cited are availability, familiarity, and ease of use. As Grant notes, most studies tend to focus on the external factors that may inhibit adoption. He reports, however, on the conclusions of a study of the internal factors--the personal characteristics that may make a person tend to accept or reject innovations. That study found a "significant grouping for certain inner personality traits among teachers classified as acceptors or

rejectors." Clearly, this knowledge could be useful in planning for program implementation.

### Challenge for Principal's Leadership

The importance of the principal's role in developing and maintaining an effective media program can scarcely be overemphasized. The principal must, of course, be actively involved in the mechanics of planning and implementing the program. But, ultimately, effective media use is far more than simply a matter of having the right equipment in the right setting. A media program will really succeed only if there is a genuine commitment throughout a school to that success. One key factor in developing such an attitude is the active support the principal gives to the program and to the efforts of the school's faculty, staff, and students to make it work effectively.

The principal's leadership of the media program should be dynamic and ongoing; he or she is ultimately responsible for virtually every aspect of its planning and implementation. This reponsibility includes selecting and hiring the media staff and overseeing the development of the media center. The principal—perhaps in conjunction with the media staff—must also establish priorities for the program, determining which parts of its potential will be first developed. Leadership responsibility also extends to promoting a climate of readiness for adoption of the media program, working to involve the faculty in it, and continually evaluating, refining, and improving it.

The principal's personality, attitudes, and human relations techniques will also play a key role in determining the success or failure of the project. To ensure maximum program participation with minimum resistance, it is important that he have the ability to communicate with and persuade faculty and staff personnel in nonthreatening ways.

The role of the principal in leading the media program is not confined entirely to the work he must do within the school. In addition, he must be an articulate spokesman for the program, able to discuss it fully and intelligently with

parents, members of the community, district administrators, school board members, and others whose support (financial or otherwise) may be essential to the program. In acting as a media advocate, the principal should foster realistic expectations of what a program can (and cannot) accomplish. To do this, he will need to be thoroughly familiar not only with a program's potential benefits but also with its limitations, its cost in time, effort, and money, its implications for curriculum change, and the near certainty that it will meet resistance.

The principal's skills as a communicator, important to the successful introduction of a media program, may be even more essential to its continuing success. Media resources can be effectively used only when they are fully integrated into the school's overall educational program. The key to effective integration is good communication between the classroom and the media center. The media program must be responsive to the felt needs of the classroom teaching staff if media and classroom instruction are to function together in a coordinated manner. The role of the principal as a school's chief administrator uniquely qualifies him to work to facilitate this type of communication.

In fact, so crucial is this communications leadership role that Faseler and West suggest that it may, ultimately, reshape the nature of the principalship. As a media program becomes more refined, a school will increasingly develop dual staff hierarchies, those of media personnel and classroom teachers. The role of the principal will be to oversee and coordinate the operations of both staffs and to supervise the mix of instruction by media and conventional methods. A principal who acquires the skills of a media administrator by mastering media technology will thus be able to work as a "master facilitator" between the two staff hierarchies and function as a school's instructional leader.

The principal's effective leadership is crucial to the effective operation of the media program in other ways as well. For example, the principal should work to provide the media staff with support personnel who can do clerical work and free the staff members for the more demanding tasks that

may require the utilization of their professional expertise. Failure to provide such support is one of several ways that a principal may inhibit effective communication between the classroom and the media program. Other policies that may have the same effect include the following:

- rigid and restrictive media access scheduling
- inefficient use of the media center (most notoriously by assigning it the functions of a general study hall)
- unsuitable selection of materials and equipment for the center
- inadequate provision of consultation time for the media center and teaching staffs
- inadequate teacher training in media use and value
- inadequate provision for use of the center beyond school hours

To a certain extent, any list of "do's" and "don'ts" is arbitrary and incomplete. But the crucial fact is that, although the specific approach may vary according to the situation, the principal must always provide that intangible quality called leadership if the media program is to be successful.

## BUDGETING THE PROGRAM

The question that must be asked of an instructional media program, or of any educational innovation, is whether it works well enough to justify its cost. Contemporary education seems to be in a kind of permanent financial crunch, making it imperative that money spent be equivalent to value received. Thus a media program or a particular medium must demonstrate that, given the limits on available funds, its benefits justify its price tag.

One example of the importance of cost-effectiveness in media development is the history of instructional television (ITV). Many writers point to the myriad advantages widespread use of ITV might produce, yet the medium itself has, with few exceptions, failed to fulfill these optimistic predictions. DuMolin suggests that a principal reason for this is the virtually prohibitive cost of ITV. The price for producing a broad range of ITV programming of a quality high enough to promote widespread utilization would be enormous; the initial outlay might exceed $1.5 billion. But even this figure is insignificant in comparison with the expense of distribution; DuMolin estimates that the price for enough tapes to make programming widely available on a truly flexible basis might run as high as $8 billion. Cost is not the only factor that has inhibited the development of ITV, but the medium would certainly enjoy far wider usage if it were not so expensive.

### The School Budget

With ITV, where the price is simply prohibitive, the question of cost-effectiveness is relatively easy to resolve. But with other media such determinations are not always so simple under traditional budgeting procedures. The school budget is supposed to function as a management tool to help oversee the operation of the school. In practice, though, a budget is usually developed, not as a result of a study of

educational objectives and ways to meet them, but of estimates of the anticipated financial needs of the school for staff, equipment, supplies, and materials for a year. After a figure is calculated, it may need to be reduced to a lower—approvable—figure (which may have nothing to do with the cost of running the school).

This approach does enable schools to continue operating, but it discourages examining alternatives to present practices, and its concern for year-at-a-time fund allocation tends to discourage long-range planning. In addition, a budget calculated in this way is often simply a list of maximum expenditures, with no indication of any coordination between those expenditures and any specific outcomes. Thus this system makes it difficult or impossible to evaluate the effectiveness of money that is spent for media programs or anything else.

One response to these deficiencies has been the increasing use of a program, planning, and budgeting system (PPBS), an approach to budgeting based on accountability. The budget clearly states educational objectives and measures the effectiveness of a program by how well it meets them. This approach may not work in situations where outcomes are complex or hard-to-measure, but the basic focus on outcomes—what the money produces—rather than simply on how much is spent, can enable educational planners to evaluate program effectiveness, to consider alternatives to existing practices, and to make a continuous assessment of a program in meeting the overall instructional needs of the school.

### The Media Budget

In budgeting for a media program, it is important that the principal work in collaboration with the librarian or media specialist in formulating programs and allocating funds. (The costs of staffing and maintaining a media program should be included in the school's operating budget, but the initial costs of developing it, which are usually much higher, should be classified as capital outlays and separated from the operating budget.) Budget planning should consider funds for

maintaining and upgrading the media collection, with special care taken to determine which areas are currently operating on an adequate level, where services need to be upgraded, and what new types of services are needed.

The total cost of a school's media program will, of course, depend on the school's priorities and available funds. Many writers suggest that most media programs are inadequately funded; if media are to play an effective role in a school's instructional program, the school must obviously make a financial commitment to its media program. A joint publication of the American Association of School Librarians, American Library Association, and Association for Educational Communications and Technology makes the following recommendation:

> To maintain an up-to-date collection of materials and equipment that fulfills and implements the instructional program, the annual per student expenditure of a school district should be at least 10 percent of the national Per Pupil Operational Cost (PPOC), as computed by the U.S. Office of Education.

This price may seem high, but a vigorous, effective media program is an essential aspect of quality education.

## CONCLUSION: "POTENTIAL" AND "PROGRAM"

A number of words and phrases seem to dominate the discussion of instructional media in the schools. Two of the most important concepts are those of "potential" and "program." The fact that these two words are used so frequently reveals a good deal about the current role of media in the schools.

In many ways, "potential" is still the key to understanding school media use. Media seem to promise enormous benefits to schools that can make use of them, but the fulfillment of that promise is largely potential, existing somewhere in the future. If a school is to realize media potential, it must plan and develop a coherent overall program of media use. An effective media program is one that is organized both so that each part works in coordination with every other part, and so that the total program helps the school move toward achieving its overall educational objectives.

One way to understand the developing role of instructional media in the schools is to visualize a continuum covering the range of different levels of media use. The initial level is one of pure potential, where a media program exists only in a master plan or a program brochure. The actual process of media adoption is an ongoing effort to transform that potential into a successfully operating program that helps the school use available media resources to provide quality education responsive to the individual learning needs of each student.

## BIBLIOGRAPHY

Many of the items listed in this bibliography are indexed in ERIC's monthly catalogs *Resources in Education (RIE)* and *Current Index to Journals in Education (CIJE).* Reports in *RIE* are indicated by an "ED" number; journal articles in *CIJE* are indicated by an "EJ" number.

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Allen, William H. "What Do 50 Years of Media Research Tell Us?" *Audiovisual Instruction*, 18, 3 (March 1973), pp. 48-49. EJ 075 340.

American Association of School Librarians; American Library Association, and Association for Educational Communications and Technology. *Media Programs: District and School.* Chicago; and Washington, D.C.: ALA, and AECT, 1975. 128 pages. Available from American Library Association, 50 East Huron Street, Chicago, Illinois 60611; or Association for Educational Communications and Technology, 1201 Sixteenth Street, N.W., Washington, D.C. 20036. $2.95.

Brown, James W., and others. *Administering Educational Media: Instructional Technology and Library Services.* 2d. ed. NewYork: McGraw-Hill Book Co., 1972. 449 pages. ED 063 759. Document not available from EDRS. (Available from McGraw-Hill Book Co., Distribution Center, Princeton Road, Hightstown, New Jersey 08520. $13.95.)

Davis, Harold S., editor. *Instructional Media Center: Bold New Venture.* Bloomington: Indiana University Press, 1971. 237 pages.

DuMolin, James R. *Instructional Television Utilization in the United States.* St. Louis: Washington University, 1971. 49 pages. ED 055 427 MF $0.83 HC $2.06.

Ellsworth, Ralph E., and Wagener, Hobart D. "Introduction to *The*

*School Library.*" In *The School Media Center: A Book of Readings*, by Pearl L. Ward and Robert Beacon, pp. 2-11. Metuchen, New Jersey: Scarecrow Press, 1973. (Entire document, 307 pages, available from Scarecrow Press, 52 Liberty Street, Metuchen, New Jersey 08840. $8.50.)

Eshleman, Winston. "Technology or Printed Media: Separate Areas of Interest." *Educational Technology*, 12, 6 (June 1972), pp. 36-37. EJ 071 965.

Faseler, Len, and West, Philip T. "The Media Administrator: Instructional Leader of the Future?" *Educational Technology*, 15, 7 (July 1975), pp. 43-45. EJ 121 190.

Glogau, Lillian, and others. *Developing a Successful Elementary School Media Center.* West Nyack, New York: Parker Publishing Co., 1972. 224 pages. ED 107 301 Document not available from EDRS.

Gorman, Don A. "A Step beyond . . . The Facilitation of Learning." *Audiovisual Instruction*, 18, 10 (December 1973), pp. 5, 8. EJ 089 819.

Grant, Alfred D. "A Study of the Personality Characteristics of the Acceptor and the Rejector of the Newer Educational Media among Secondary Teachers of Wisconsin." Paper presented at annual meeting of the Department of Audio-Visual Instruction, NEA, Detroit, April 1970. 125 pages. ED 044 899 MF $0.83 HC $6.01.

National Association of Secondary School Principals. *How to Be Resourceful in Centering Instructional Media.* Washington, D.C.: 1975. 13 pages. ED 105 850 MF $0.83 HC not available from EDRS. (Available from NASSP, 1904 Association Drive, Reston, Virginia 22091. $0.50.)

Pohland, Paul A., and Smith, Louis M. "Computer Assisted Instruction: Issues for Decision Makers." *Administrator's Notebook*, 20, 1 (September 1971), pp. 1-4. EJ 042 634.

Singh, Jai P., and Morgan, Robert P. *Computer-Based Instruction: A Background Paper on Its Status, Cost/Effectiveness and Telecommunications Requirements.* St. Louis: Washington University, 1971. 40 pages. ED 055 429 MF $0.83 HC $2.06.

Spuck, Dennis W., and Owen, Stephen P. "The Structure and Management of Individualized Instruction." Paper presented at AERA annual meeting, Washington, D.C., March-April 1975. 22 pages. ED 107 220 MF $0.83 HC $1.67.

Ward, Pearl L., and Beacon, Robert, editors. *The School Media Center: A Book of Readings.* Metuchen, New Jersey: Scarecrow Press, 1973. 307 pages. (Available from Scarecrow Press, 52 Liberty Street, Metuchen, New Jersey 08840. $8.50.)